USAID | TANZANIA
FROM THE AMERICAN PEOPLE

AFRICA RISING - Enhancing partnership among Africa RISING, NAFAKA and TUBORESHE CHAKULA Programs for fast tracking delivery and scaling of agricultural technologies in Tanzania Quarterly Report

01 June 2019 – 30 September 2019

Submission Date: 28 October 2019
Contract/Agreement No: BFS-G-11-00002
Activity Start Date and End Date: 01 October 2017 to 30 September 2020
COR/AOR Name: Andrew Read

Submitted by: **International Institute of Tropical Agriculture**
IITA Headquarters,
PMB 5320, Oyo Road, Ibadan 20000,1
Oyo State, Nigeria.
Tel: +234 700800IITA, +1 201 6336094

IITA
Transforming African Agriculture

Contents

Cover photo

Gaspar Audifas (IITA) explains about the mechanical sheller to a visitor who stopped at the Africa RISING – NAFAKA desk during the Nane Nane Agricultural Fair in Mbeya District, Tanzania. Photo credit: Japhet Frednand/IITA.

I. ACTIVITY OVERVIEW/SUMMARY

Activity Name:	AFRICA RISING - Enhancing partnership among Africa RISING, NAFAKA, and TUBORESHE CHAKULA Programs for fast tracking delivery and scaling of agricultural technologies in Tanzania.
Activity Start Date:	1 October 2017
Activity End Date:	30 September 2020
Name of Prime Implementing Partner:	International Institute of Tropical Agriculture (IITA)
Contract/Agreement Number:	BFS-G-11-00002
Name of Subcontractors/Sub awardees:	• Tanzania Agricultural Research Institute (TARI), Dakawa/Chollima • Tanzania Agricultural Research Institute (TARI), Hombolo • Tanzania Agricultural Research Institute (TARI), Uyole
Major Counterpart Organizations	• District Agricultural Councils
Geographic Coverage (districts, regions, and/or Zanzibar)	• Babati District (Manyara Region) • Wanging'ombe District (Njombe Region) • Kilombero District (Morogoro Region) • Iringa Rural, Mufindi and Kilolo Districts (Iringa Region) • Mbarali District (Mbeya Region) • Mbozi and Momba Districts (Songwe Region)
Reporting Period:	01 July 2019 – 30 September 2019

1.1 Executive summary

The Africa RISING-NAFAKA partnership project focuses on the delivery and scaling of promising interventions that enhance agricultural productivity in Tanzania. The key interventions are the promotion of climate-smart agricultural innovations, dissemination of best-bet crop management packages, rehabilitation and protection of natural resources, and reduction of food waste and spoilage. The project focus is on three crop enterprises—maize, rice, and legumes (common bean, chickpea, cowpea, and green gram)—with nutrition and postharvest handling as cross-cutting themes. The key partners in the project include one USAID-funded project under the Global Food Security Strategy (GFSS) Initiative in Tanzania—CMSD/NAFAKA— national agricultural research institutions (Dakawa, Hombolo, and Uyole), District Councils, as well as the private sector (seed companies, millers, and processors), and non-governmental organizations (NGOs). During the current quarter, project activities were implemented in eight Districts in the Regions of Iringa, Mbeya, Morogoro, Njombe, and Songwe, all in the GFSS Zone of Influence (ZoI).

Six activities were implemented in the current quarter. (i) 28 producers of quality declared seed (QDS) (19 males, 9 female) from the rice producing Districts of Mbarali, Kilombero, Momba, and Iringa were trained on production principles of legume seed production. Also, 30 QDS association leaders (23

males, 7 female) from the Districts of Momba, Mbozi, Kilombero, Mufindi, and Mbarali were trained on leadership, record keeping, and operations to improve their performance. (ii) Participation in national agricultural shows (nane nane) in Mbeya attracted 724 visitors (404 male, 320 female); the Mwanga platform hosted by TARI Uyole separately attracted 424 visitors (368 male, 56 female). (iii) Certification of QDS seeds produced was provided by the Tanzania Official Seed Certification Institute (TOSCI) for a total of 362 t for rice produced by 127 growers and 41 t for common bean (96 growers). (iv) Yield data were collected and analyzed with advantages shown in respect of the technologies promoted, as in the past years: improved varieties of rice (TXD306 and Komboka) yielded 8.7–9.1 t/ha with use of fertilizers and good agricultural practices (GAPs) as compared with 3.1–6.3 t/ha for local varieties. For salt-affected soils (SAS) the salt-tolerant rice varieties (SATO 1 and SATO 6) yielded 5.5–6.1 t/ha compared with 5.1–5.6 t/ha for non-tolerant local varieties. Results from farmers' fields (model farms) also corroborated the results from demos, whereby for improved varieties and management practices, yields ranging between 5.6 and 7.7 t/ha were realized. For maize, in semi-arid locations, depending on location and variety, yields ranged from 3.1 to 5.9 t/ha with tied ridges, from 2.1 to 6.3 t/ha with open ridges, and from 0.8 to4.6 t/ha with open cultivation. Detailed results on application of lime and timing of fertilizer application will be shared in the next quarter. The five varieties of common bean introduced for scaling performed well with no clear favorite; yields ranged between 0.4 and 1.8 t/ha depending on location. Thus, basing only on yield results may not be suitable for gauging the suitability of the different varieties for the different agroecologies; more socioeconomic studies will be conducted; (iv) Using the Mwanga platform, 11 messages were sent to 10,000 farmers on postharvest management in all the eight Districts. (v) Three communication materials (two technology briefs and one brochure) on postharvest management were developed and used for training of 300 farmers in Iringa, Mbeya, and Songwe Regions.

The key planned activities for the next quarter are (i) boot camp for all project staff and implementing partners to update their skills in project implementation; (ii) identification of demo sites and delivery of agroinputs at the identified sites; (iii) refinement of protocols for the various demo sites; and (iv) pretesting, translation (into Swahili) and distribution of all ready training materials (manuals, crop calendars, brochures, technology briefs) to the different stakeholders.

1.2 Summary of results to date

Indicators	FY 18/19 target	Q1 FY18/19	Q2 FY18/19	Q3 FY18/19	Q4 FY18/19	Achievements FY 18/19	Percentage achieved FY19	LOP target	LOP achievements to date	LOP percentage achieved
EG.3.2 Number of individuals participating in USG food security programs [IM-level]	56,255	5,750	37,535	21,869	195	65,349	116	62,500	67,897	109
*EG.3.2-24 Number of individuals in the agriculture system who have applied improved management practices or technologies with USG assistance [IM-level]	42,000					64,540	153	45,000	64,657	144
*EG.3.2-25 Number of hectares under improved	50,000					87,762.91		56,000	87,856.51	156.88

management practices or technologies with USG assistance [IM-level]										

*Data for these indicators are to be reported in Quarter 4 after the annual outcome survey.

1.3 Evaluation/assessment status and/or plan

Assessment Type	**Planned for (date)**	**Status**
Annual outcome survey	September 2019	Conducted.

2. ACTIVITY IMPLEMENTATION PROGRESS

2.1 Progress narrative

Africa RISING and partners are involved in the delivery of agricultural information and technology packages through a network of projects and other public and private sector actors that include ACDI/VOCA that leads NAFAKA, the USAID-funded cereals project in Tanzania. These collaborations are aimed at improving efficiency and enhancing disciplinary integration while contributing to the goals of the Feed the Future (FtF) initiative of harmonizing regional efforts to fight hunger and poverty in countries with chronic food insecurity and insufficient production of staple crops. Attractive interventions in this project include promotion of climate-smart agricultural innovations, dissemination of Good Agricultural Practices (GAPs), rehabilitation and protection of natural resources, and postharvest management.

The project focuses on three crop enterprises (maize, legumes, and rice) with postharvest handling and nutrition as cross-cutting themes. The key partners in the project include the International Institute of Tropical Agriculture (IITA) as the Lead institution, three institutions of the Tanzania Agricultural Research Institute (TARI) —Dakawa, Uyole, and Hombolo—and one USAID-funded project (NAFAKA) led by ACDI/VOCA. These work in partnership with the District local government institutions, specifically DAICOs, the private sector (seed companies, millers, and processors), and NGOs to deliver on the following objectives:

1. Introduce and promote improved and resilient varieties of food crops to farm households in a manner that complements their ongoing farm enterprises, contributes to sustainable agricultural resource management, and offers nutritional advantages and alternative market channels.
2. Disseminate GAPs along with the most promising new crop varieties suited to widely representative agroecological zones and market proximity.
3. Protect land and water resources and foster agricultural biodiversity through the introduction of soil and water management practices.
4. Introduce and promote postharvest management technologies for maize, rice, and legumes to reduce losses and bring quality up to market standards.
5. Offer and expand capacity-building services to members of grassroots farmers' associations, platform partners, and development institutions in the scaling process, paying particular attention to the special opportunities available to women farmers as technical and nutritional innovators and resource managers.

The project is currently being implemented in five Regions of Tanzania: Njombe, Morogoro, Iringa, Mbeya, and Songwe, all in the Tanzania FtF ZoI (Fig. 1).

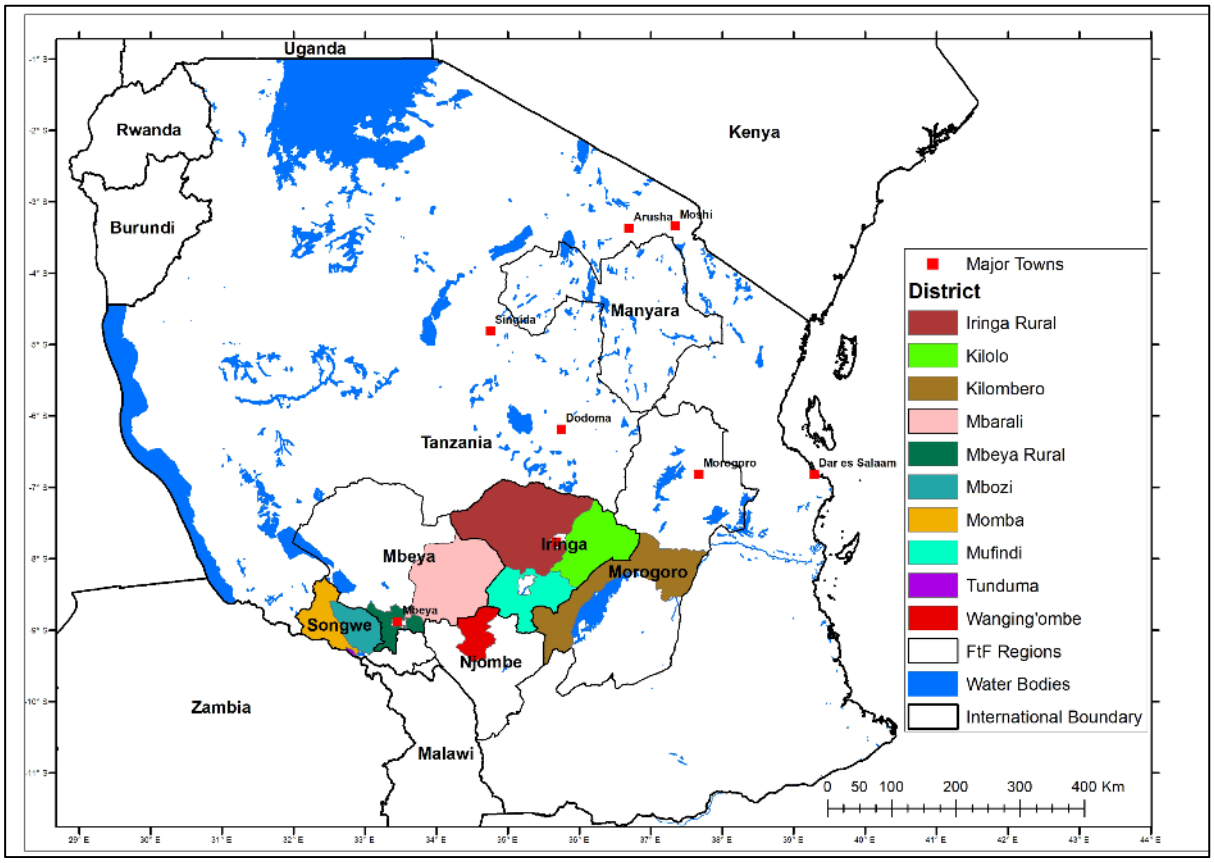


Figure 1: Project locations.

All project activities contribute to the Development Objective (DO2) of the USAID Tanzania Country Development Cooperation Strategy (CDCS): including broad-based economic growth being sustained. This is Year 2 of the project's Phase 2, and we plan to achieve the Life of Project (LoP) targets of 62,500 individuals benefiting from project activities and 56,000 ha under improved technologies as a result of project interventions.

2.2 Implementation status and planned activities

2.2.1 Training activities

Two training activities were conducted.

a) Leaders of QDS associations from Iringa, Mbeya, Morogoro, and Songwe Regions were trained in leadership, record keeping, and operations from 13 to 24 August 2019. The training was facilitated by IITA, ACDI/VOCA (NAFAKA) and local government staff (District community development officers) and was attended by 30 association leaders (7 female, 23 male) from all 10 associations formed in the previous months from the Districts of Kilombero, Mufindi, Mbarali, Mbozi, and Momba. Table 1 shows the distribution of participants by Region and District.

Table I: Participation in QDS trainings.

Region	District	Focus of QDS production	Male participants	Female participants	Total
Iringa	Mufindi	Common bean	2	1	3
Mbeya	Mbarali	Rice	7	2	9
Morogoro	Kilombero	Rice	7	2	9
Songwe	Mbozi	Bean	2	1	3
	Momba	Rice and Common bean	5	1	6
TOTAL			**23**	**7**	**30**

b) In July 2019, training of 28 QDS producers (19 males, 9 female) in rice producing districts was conducted on principles of legume QDS production and GAPs. The legumes are planted as a follow-on crop by rice producers. After the training, the producers planted the crop as indicated in Table 2.

Farmers selecting legume seed as part of the training activities in Njombe Region, Tanzania. Photo credit: Filbert Mzee/ACDI VOCA.

Ezekiel, a NAFAKA field staff, providing on-farm technical advice to one of the follow-on legume crop growers in Iringa District. Photo credit: Filbert Mzee/ACDI VOCA.

Table 2: Quantity (acreage) and types of legume seeds cultivated for QDS production as a follow-on crop after rice harvest in each district.

District		**Types of legumes**				**Total**
		Chickpea (Varieties: *Ukiriguru1* and *Mwanza2*)	**Green gram** (Variety: *Imara*)	**Cowpea** (Variety: *Vuli 1*)	**Common bean** (Varieties: *Njano Uyole* and *Jesca*)	
Mbarali	Amount of seeds (kg)	50	10	8	105	**173**
	Area cultivated (acres)	2	1	1	3	**7**
Iringa Rural	Amount of seeds (kg)	25	10	8	35	**78**
	Area cultivated (acres)	1	1	1	1	**4**
Kilombero	Amount of seed (kg)	24	30	24	210	**288**
	Area cultivated (acres)	5	3	3	6	**17**
Momba	Amount of seeds (kg)	25	0	0	0	**25**
	Area cultivated (acres)	1	0	0	0	**1**
Total	**Amount of seeds (kg)**	**124**	**50**	**40**	**350**	**564**
	Area cultivated (acres)	**8**	**5**	**5**	**10**	**28**

The legume varieties were selected owing to their suitable characteristics as follow-on crops: early maturity, resistance to wilt diseases, high yields, and marketability (preferred by consumers).

2.2.2 Participation in nane nane agricultural shows

During the week from 1 to 8 August 2019, Africa RISING-NAFAKA co-participated with other USAID IPs in Mbeya Region to showcase innovations that can improve livelihoods and contribute to national development as part of the nane nane week. A total of 724 participants (404 males, 324 female) interacted with the technologies at the show.

The following technologies were exhibited:

- Maize shellers of different capacities ranging from 0.5 to 3.5 t/ha)
- Collapsible dryer case for improved drying of grain
- Hermetic storage bags (PICS, Agro Z, and Grain Pro bags)
- Aflasafe for pre-harvest aflatoxin management
- Value-added products of maize, rice, spices, and banana
- Improved rice varieties, and
- Paddy QDS
- The Mwanga ICT platform

The Mwanga platform was showcased by one of the project partners, TARI Uyole, in a location that was different from the others; 424 visitors (368 male, 56 female) interacted with the hosts.

Exhibition of different products at the Africa RISING – NAFAKA stand during the Nane Nane Agricultural Fair in Mbeya District, Tanzania. Photo credit: Japhet Frednand/ACDI VOCA.

2.2.3 Inspection and certification of Quality Declared Seeds Field days

Staff of this project and the NAFAKA project, working in collaboration with TOSCI, successfully processed approval and certification of 403 t of QDS seeds (362 t for rice and 41 t for bean) produced during the current year for sale and planting next season. These amounts were produced by 219 growers (127 [86 male, 41 females]) for rice QDS and 96 [64 male, 32 females] for bean QDS). Table 3 shows the production levels of QDS common bean; Table 4 shows the QDS rice produced in each of the Districts.

Table 3: Amounts of QDS common bean produced and certified.

District	Production per variety (t)			
	JESCA	*Njano Uyole*	*Uyole 03 (Mwasipenjele)*	***Grand Total***
Iringa Rural		6.14		6.14
Kilolo		4.07		4.07
Mbozi	4.87	4.52		9.39
Momba	5.15			5.15
Mufindi	1.39	9.53	2.37	13.29
Wanging'ombe	3.09			3.09
Grand Total	***14.5***	***24.26***	***2.37***	***41.13***

Table 4: Amounts of QDS rice produced and certified (all TXD 306 [SARO 5] variety).

District	Production (t)
Kilombero	118
Mbarali	182.5
Momba	3.17
Iringa Rural	15.4
Mvomero	42.5
Total	***361.57***

2.2.4 Yield data

Data on the effect of packages being taken to scale by the project on production levels were collected from the mother demos. Data were also collected from model farms managed by beneficiary farmers. For rice, the package, consisting of use of improved varieties (SARO 5 and Komboka), fertilizers, and other GAPs, indicated that, as for previous years, improved varieties led to higher yields than local varieties with or without fertilizers and other GAPs. With GAPs, improved varieties yielded, on average, 8.7–9.1 t/ha as compared to 6.3 t/ha of the local ones (Table 5 and Fig. 2). Similarly, with farmers' conventional practices the improved varieties, though lower, also yielded higher (3.2–3.5 t/ha) than the local varieties that yielded 3.1 t/ha.

Table 5: Average yield of improved and local rice varieties grown with recommended GAPs and with conventional practices in irrigated and rain-fed ecosystems in the project Districts.

District	**Management**	**Average Yield of varieties (t/ha)***		
		TXD 306	**Komboka**	**Local**
Mbarali (Irrigated)	With recommended technology	9.6 (15)	10.0 (15)	6.7 (14)
	With farmers' conventional practices	7.2 (8)	8.1 (8)	5.4 (8)
Iringa Rural (Irrigated)	With recommended technology	6.7(6)	8.0 (6)	6.4 (6)
	With farmers' conventional practices	5.0 (2)	4.5 (2)	4.1 (2)
	With recommended technology	7.1 (8)	6.4 (8)	3.8 (6)

Kilombero (Rainfed lowland)	With farmers' conventional practices	0.7 (2)	2.4 (1)	2.4 (3)
Momba (Mainly rainfed lowland)	With recommended technology	12.8 (3)	10.2 (2)	8.3 (1)
	With farmers' conventional practices	1.0 (1)	None	None
Average across Districts	**With recommended technology**	**9.1 (32)**	**8.7 (31)**	**6.3 (27)**
	With farmers' conventional practices	**3.5 (13)**	**3.2 (11)**	**3.1 (13)**

* Values in brackets indicate the number of sites from which the data were collected.

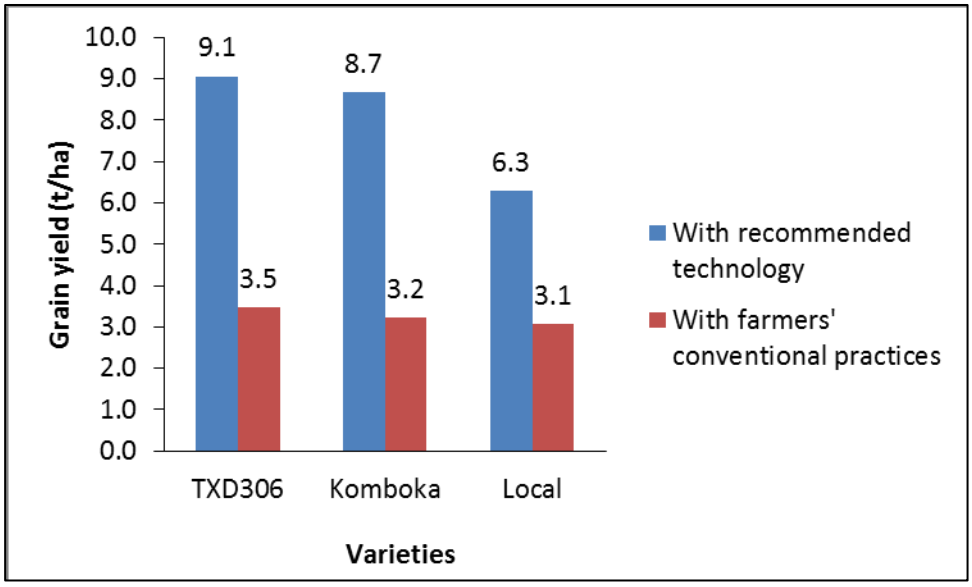


Figure 2: Yield of improved and local rice varieties grown with recommended GAPs or with conventional practices (mother demos) in the project districts.

Additionally, the average grain yield of the demonstrated salt-tolerant varieties collected in the mother demo plot to demonstrate management of salt-affected soils (SAS) using gypsum and improved salt-tolerant (SATO) varieties, is as indicated in Figure 3.

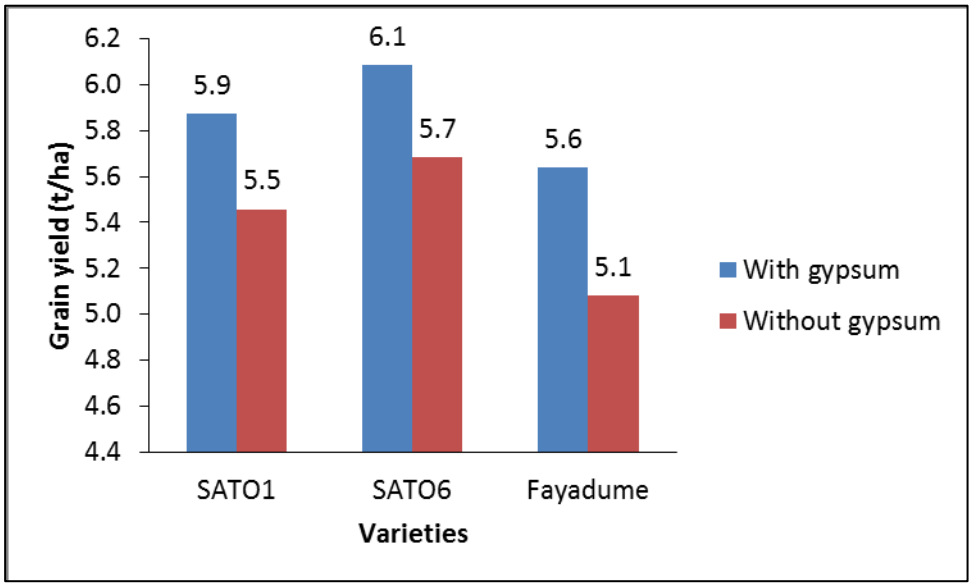


Figure 3: Yield of one non-tolerant and two salt-tolerant (SATO) rice varieties grown with or without salt management (gypsum) and other GAPs in a mother demo at Magozi irrigation scheme, Iringa Rural District.

From the SATO demo site, with the application of gypsum and SATO varieties, yields of 5.9–6.1 t/ha were obtained as compared to 5.6 t/ha when the local variety (Fayadume) was used (Fig. 3). Using the improved varieties but with conventional practices, slightly lower yields of 5.5–5.7 t/ha were obtained, as expected. However, the yields were still higher than the 5.1 t/ha obtained when the local (non-tolerant) variety was used.

Results from model farms (managed by farmers who applied improved varieties and GAPs on their farms) across the project Districts (Table 6 and Fig. 4) also exhibited higher yields compared to the use of local varieties and conventional practices. The yields ranged from 5.6 to 7.7 t/ha for the different Districts, with Kilombero exhibiting the lowest yield and Mbarali the highest.

Table 6: Average grain yield from model farms in the project Districts.

District	**Number of model farms from which the data were collected**	**Average yield (t/ha)**
Mbarali	18	7.7
Iringa Rural	9	6.0
Kilombero	10	5.6
Momba	3	6.2

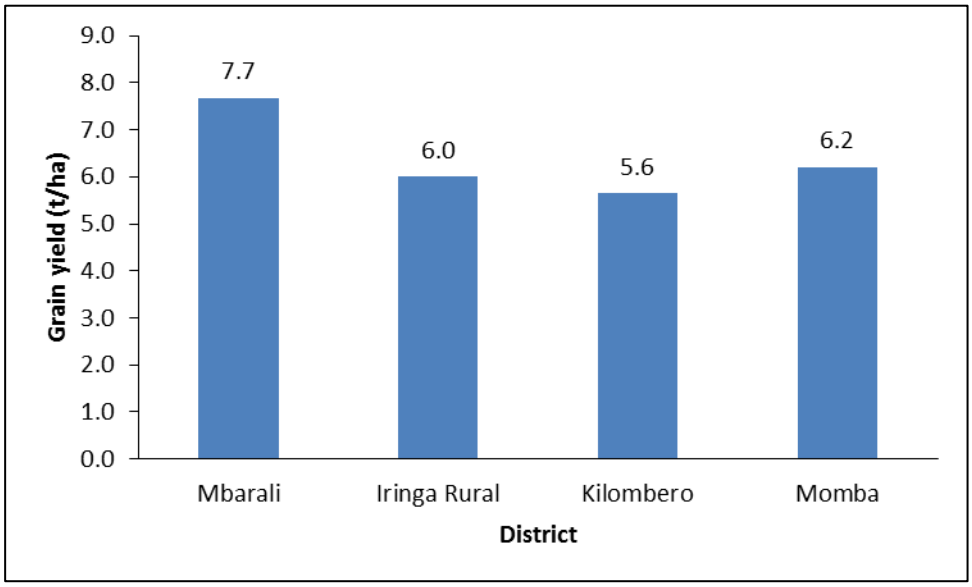


Figure 4: Yields of improved rice variety (TXD 306) grown with recommended GAPs in model farms in the different districts.

For maize, for soil and water management practices (SWM)practices in semi-arid locations in Iringa Rural, Kilolo, and Wanging'ombe Districts, relatively higher yields were obtained from crops planted with ridges (open and tied) as a SWM practice compared with flat beds. The harvests ranged from 3.1 to 5.9 t/ha for tied ridges and from 2.1 to 6.3 t/ha for open ridges compared to 0.8 t/ha–4.6t/ha for flat beds (no ridges) as shown in Figures 5, 6, and 7. Location and maize variety planted accounted for the differences in yield; in Kilolo District, yields were generally comparatively higher than in Wanging'ombe and Iringa Rural for all varieties, further emphazising the importance of adequate targeting of varieties, among other considerations. Data on lime application and timing of fertilizer application were also collected. Results of the analysis will be presented in the next quarterly report.

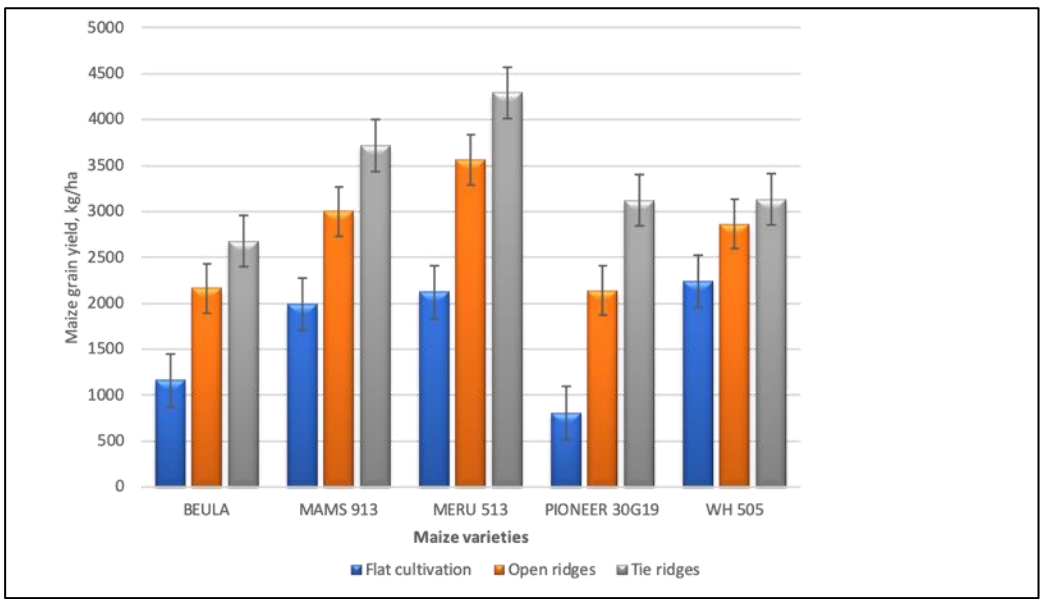


Figure 5: Effects of SWM practice and variety on maize yield in semi-arid areas of Iringa Rural District.

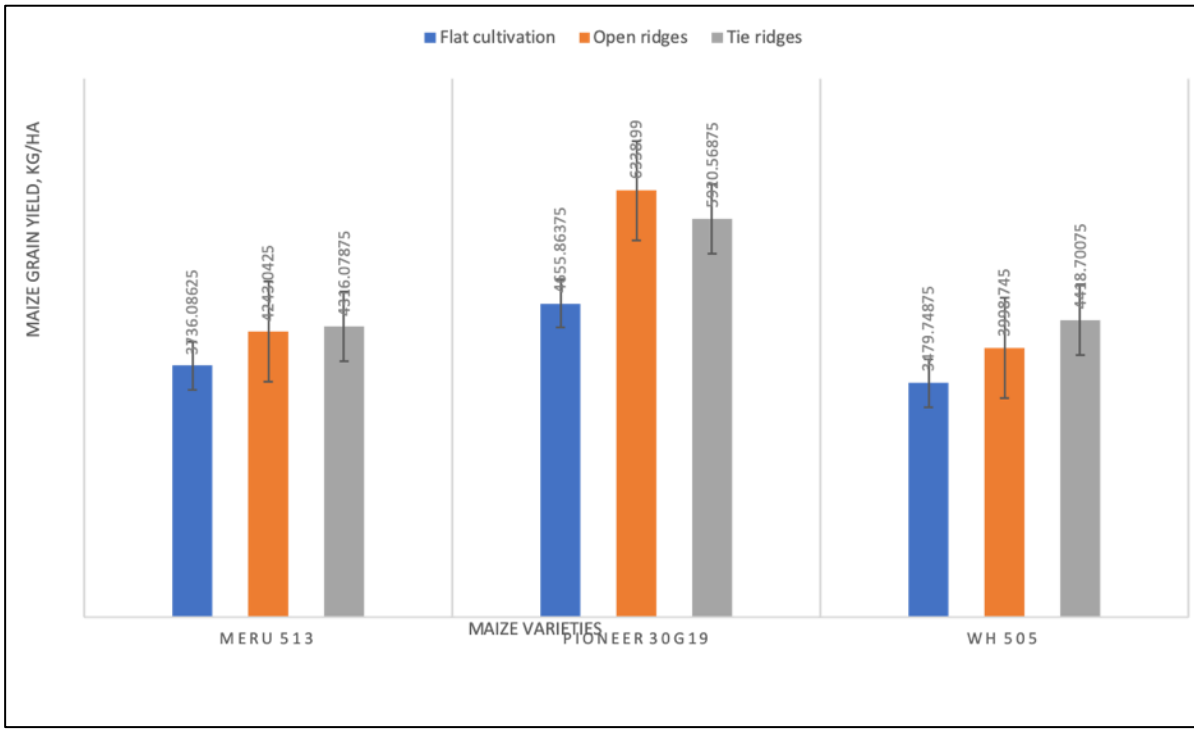


Figure 6: Effects of SWM practice and variety on maize yield in semi-arid areas of Kilolo District.

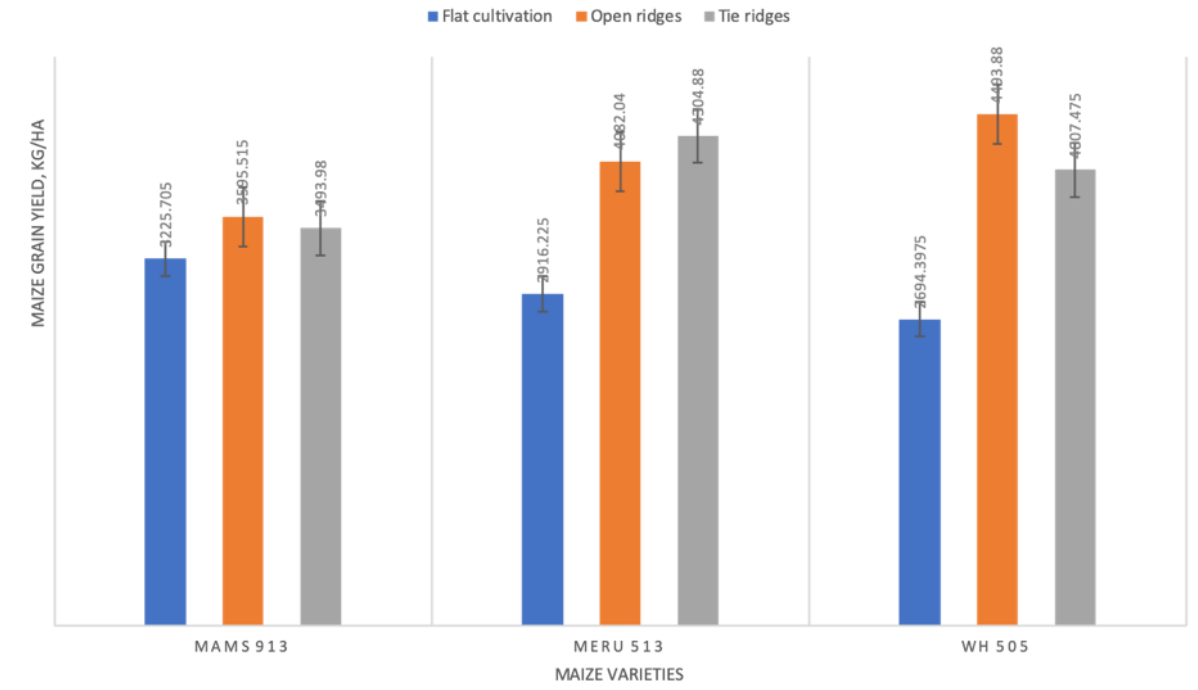


Figure 7: Effects of SWM practice and variety on maize yield in semi-arid areas of Kilolo District.

For common bean, the yields were generally low in farmers' fields because of excessive rain. However, the varieties being taken to scale exhibited tolerance to the rain, resulting in yields ranging from 0.4 to 1.8 t/ha, depending on location and variety. We noted mixed results regarding the varieties (Fig. 8), with Njano Uyole performing well in Wanging'ombe and Iringa Districts whereas Selian series as well as the other varieties performed well in Momba and

Mbozi. Thus, basing only on yield results may not be suitable for gauging the suitability of the different varieties for the different agroecologies; more socioeconomic studies will be conducted next year.

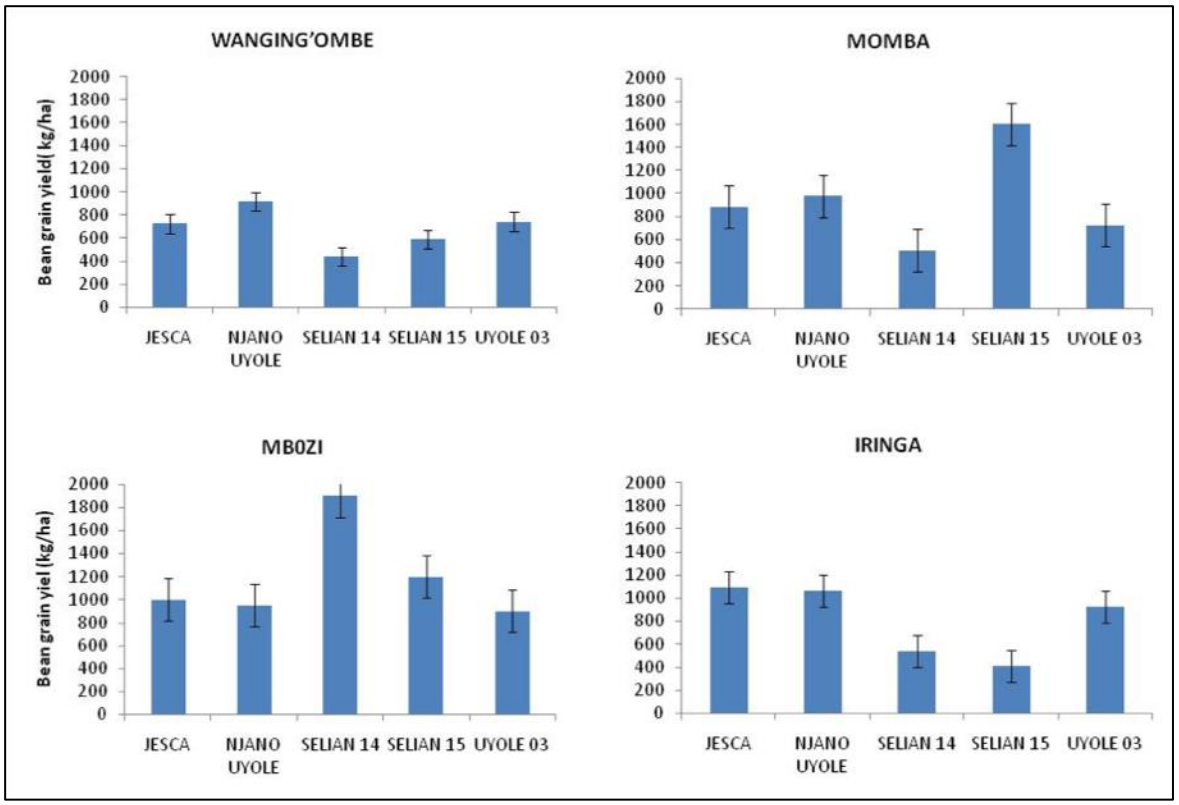


Figure 8: Yields of the different bean varieties.

2.2.5 ICT activities

During the current quarter, the Mwanga ICT platform was used to send 11 messages to 10,000 farmers on postharvest management in all eight Districts (Fig. 9). The messages included advice on activities and reminders on good postharvest practices (good harvesting practices, threshing and drying, sorting and cleaning before bagging for storage; improved (air-tight) storage techniques; aflatoxin management approaches; store preparation and storage hygiene. The messages also conveyed tips on the techniques/technologies to apply for specific postharvest operations. The time to send out the messages was tailored to address resilience by instilling preparedness, that is, providing early awareness to the farmers on when and how the next postharvest activity is to be done. In future, interactive videos which are also part of the platform (K+) will be deployed as an add-on to improve the knowledge transfer by extension officers and partners to the farmers.

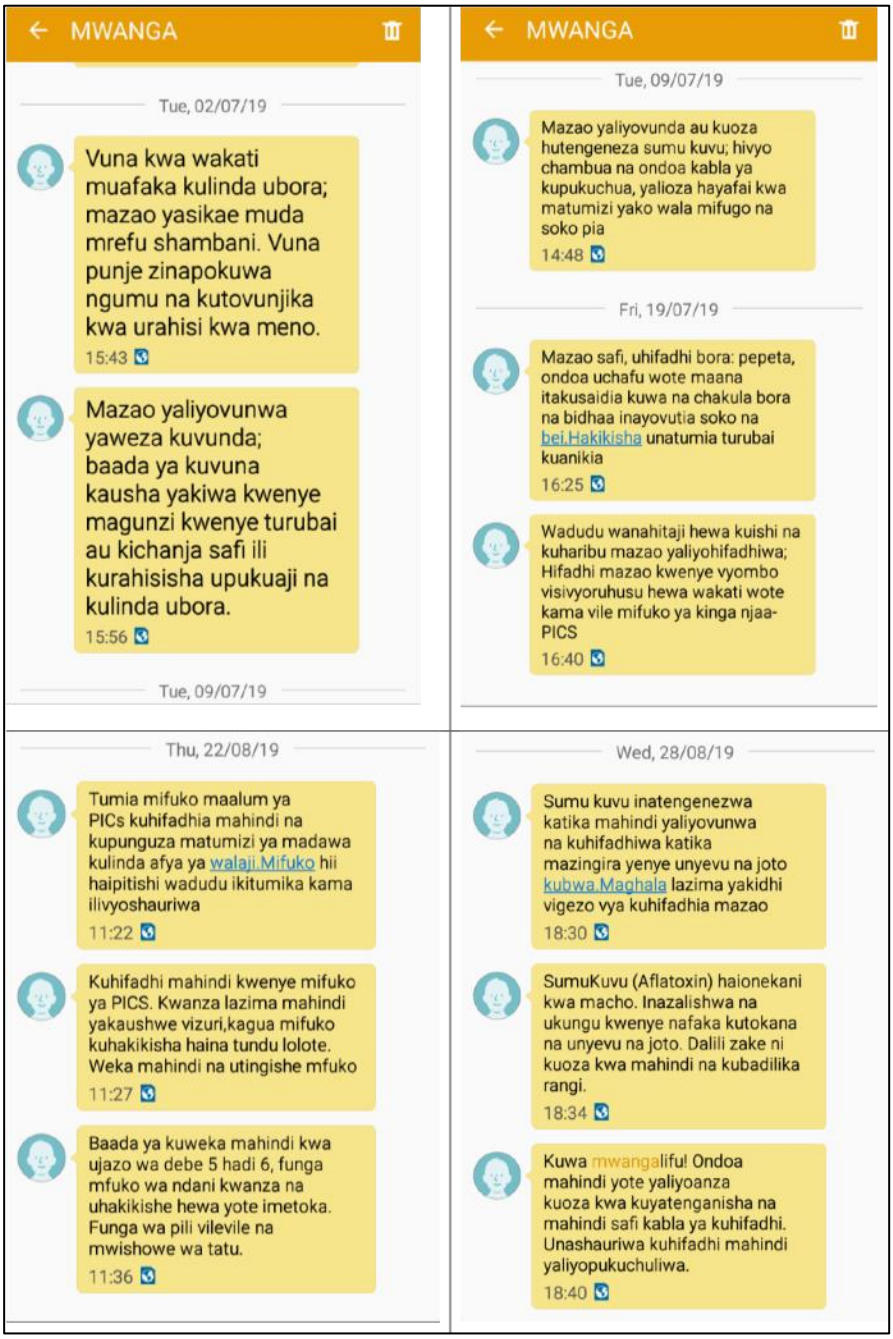


Figure 9: Postharvest messages received by farmers as seen on a smartphone screen.

2.2.6 Communication materials

Two technology briefs and one brochure were prepared in response to the need to provide simplified content that farmer trainers and extension staff could easily use for reference when training farmers. These training materials were designed to demonstrate the following:

- the need to address (postharvest food loss) as a persistent problem);
- how improved technologies are relevant for addressing the problem;
- the relative advantages of some improved technologies – airtight storage bags and the metal silo – over existing practices;
- the costs and expected benefits of technologies compared to existing practices and alternatives; and
- how to get started with the improved technologies.

The actual materials in (pdf form) are enclosed as part of the annexes.

2.2.7 Problems and challenges

No challenge was encountered during this quarter.

2.2.8 Planned activities

The key planned activities for the next quarter include the following:

(i) boot camp for all project staff and implementing partners to update their skills in project implementation;
(ii) identification of demo sites and delivery of agroinputs at the identified sites;
(iii) refinement of protocols for the various demo sites; and
(iv) pretesting, translation (into Swahili) and distribution of all ready training materials (manuals, crop calendars, brochures, technology briefs) to the different stakeholders.

3. INTEGRATION OF CROSS-CUTTING ISSUES AND USAID FORWARD PRIORITIES

3.1 Gender equality and women's empowerment

The approach of the Africa RISING-NAFAKA project emphasizes gender consideration at all levels of project implementation. In the process of building capacities of farmers, both males and females are trained, considering different gender groups, i.e., adult males and females and the youth (of both sexes). Both male and female members have equal opportunities in the groups and, as male participants constitute about 70% of project participants, efforts are being made to increase the number of females taking part.

3.2 Youth engagement

Youth involvement is a key aspect of the project interventions. The youth are equally encouraged to participate in all activities. So far, about 22% of project participants are young adults under 29 years of age. Most of these young people (74%) do family farming and on land which they own. About 26% of them rent the land on which they are farming, especially in rice growing areas (for instance, 73% of all the land that the young people farm in Mbarali District is leased; it is 32% in Kilombero District).

3.3 Local capacity development

As in past years, the project continues to work with Government agricultural extension staff at District and village levels. In addition, collaboration by Africa RISING and NAFAKA continues in supporting and training VBAAs who not only complement extension staff trainings but also play a key role as frontline actors in the rural agroinput dealer network. Furthermore, the project works with farmers' groups and associations whose capacities are developed in GAPs and related technical areas.

3.4 Integration and collaboration

The NAFAKA field staff coordinate the activities of the Africa RISING-NAFAKA partnership project supported by Africa RISING in all the project Districts. In addition, we have successfully sought collaboration with the private sector (Corteva, Seed Co, Meru Agro, ETG, Beula Seeds, Agriseed, Tanzania Fertilizer Association, and AgroZ) to support demo sites in all project Districts. We have also sought collaboration with Esoko for ICT-based services as well as NGOs, such as Helvetas, for postharvest management activities.

3.5 Sustainability

The close collaboration with the GoT, extension staff at District level, and private sector actors aims at linking the farmers to partners and development initiatives that will provide support beyond the life of the project. In collaboration with the NAFAKA project, the team works with VBAAs and selected Lead farmers who manage demo plots, provide access to inputs, and produce QDS for legumes and rice to sustain the availability of varieties being taken to scale. Furthermore, the project team plans to continue to link local input and other service providers (e.g., machinery, crop insurance) with farmers and local extension staff to ensure the technologies continue to be accessible after the project ends.

On sustainability of QDS activities our efforts to form associations at cluster and apex levels are aimed at ensuring that members can have access to services after the project has ended. We also plan to start supporting the associations in managing Savings and Internal Lending Communities/Committees (SILC) for members to have resources for enhancing their activities. We have also successfully linked the QDS producers in Districts where we have left or scaled down activities to seed sources (TARI). We hope to do the same for other Districts as the project gets close to its end.

On sustainability of ICT interventions, we have lobbied the local governments at District and Regional levels to appreciate the importance of using ICT to deliver extension and incorporate the costs into their budgets. So far, there is positive feedback from Momba District Council where the DAICO is actively lobbying for inclusion of the ICT component in their budget. TARI institutes (Uyole, Selian), agri-businesses such as fertilizer companies (Minjingu), seed companies (Meru Agro), micro-finance institutions, and millers have also expressed willingness to support the ICT platform, especially with respect to developing content and delivering bundled services to the smallholder farmers who would otherwise be left out of such engagements because they are considered to be financially risky.

3.6 Environmental compliance

In accordance with the project, PERSUAP, and other guidelines, the team emphasizes the judicious use of agroinputs by promoting integrated soil fertility management without damaging the natural resource base. In semi-arid locations We encourage farmers in semi-arid locations to use improved in-situ water conservation technologies, such as tied ridges. Management technologies for soils on steep slopes or those affected by acidity or high salinity and calcium content underlie the approach used in this project. Given the increase in problems of water availability for production, we emphasize the importance of using organic manure and minimizing the use of water in rice production. This is done, among other methods, by promoting the water-saving technologies such as the AWD technology and by establishing bunds around paddy plots. Also, the training of farmers and extension staff on the safe use and handling of agro-chemicals is one of the focus areas of the project.

3.7 Global climate change

Since the project is operating in the context of climate change, we have embraced scaling of technologies and agricultural practices that enhance resilience to climate variability.

3.8 Policy and governance support

The project's activities are in line with the policy of GoT in fostering agricultural development and also contributing to ASDPII. Consequently, the team has received support from National, Regional, district, and village local governments in all areas where the project activities are implemented in the form of joint implementation of development activities.

3.9 Private sector engagement, Public Private Partnerships (PPP), and Global Development Alliance (GDA) collaboration

The project works directly with many agro-input/seed companies in Tanzania such as Meru Agro, Syngenta, Seed Co, and Corteva. Their staff have been instrumental in providing guidance on matters related to agro-inputs as well as in participating in the rural agro-input network spearheaded by the NAFAKA project. We are also working closely with Esoko to ensure that we integrate ICTs in our activities.

The demand for mechanical shellers/threshers and hermetic storage bags has increased owing to the increase in awareness about the technologies. We established partnership with the Poly Machinery Co. Ltd based in Dar es Salaam that can supply mechanical shellers/threshers and provide spare parts and after sales services to farmers. We also established partnerships with two manufacturers of hermetic storage bags, i.e., AgroZ and PPTL Co. Ltd. The companies have shown interest in continuing to work with farmers and other supply chain actors to strengthen the supply network especially in the rural areas. This will enhance continuity of the use of the technology. AgroZ will also supply aflasafe which was recently approved for use by farmers in Tanzania.

3.10 Science, technology, and innovation

Use of ICTs via the "Mwanga" platform as well as GIS for targeting and scaling of technologies will potentially contribute to good results in the farming communities.

4. STAKEHOLDER PARTICIPATION AND INVOLVEMENT

See sections 3.3 and 3.4.

5. MANAGEMENT AND ADMINISTRATIVE ISSUES

Nothing to report this quarter.

6. MONITORING, EVALUATION, AND LEARNING

The PMP indicators are presented in Annex 1.

7. SPECIAL EVENTS FOR NEXT QUARTER

None.

8. RESPONSE TO A/COR COMMENTS ON THE PREVIOUS REPORT

We received comprehensive comments on the Quarter 3 report and below is an indication of the responses.

What is the sustainability plan with farmers after NAFAKA/AR in terms of the existing relationship between farmers and agro dealers, producers, and the communities?

We have designed about four components of a robust sustainability plan for both Africa RISING and NAFAKA.

(i) After completion of the 'willingness to pay' study later this financial year, we envisage the strengthening of the VBAA model via enhancing their capacities to provide the services that respondents are willing to pay for. Preliminary results indicate that farmers are willing to pay for IPM services via the sprayer service model and access to the right knowledge and products. In the same way, after finalization of the manuals and other documentation products, these will be used by VBAAs, Government of Tanzania extension staff, and leaders of producer organizations to train their clients. We have also engaged with the respective District Councils to integrate and budget for activities that the project is implementing. We have been successful with Mvomero, Mufindi, Mbarali, and Kilombero Districts who have allocated some resources to activities associated with the project, albeit (in most cases, except for Mufindi and Mbarali) in different locations where the project is not currently operational.

(ii) Strengthening the different farmers' organizations (POs, farmers' groups, and QDS associations) via training on production and associated services is a sustainability action in itself.

(iii) NAFAKA has started the process of signing MoUs with agro-input companies (CORTEVA, OCP, and YARA) aimed at strengthening the last mile (VBAA) connection to agro-inputs. Operationalization of the MoUs so that each of the companies, hub agro dealers, and VBAAs play their role adequately with NAFAKA as a facilitator is ongoing and will continue during the cost-extension period. On a special note, some of the agro-input companies such as AgroZ have had their staff trained in setting up demo sites as learning centers, and are keen to use the existing community agricultural service platform to market new products such as Aflasafe and other products (drying and storage facilities) in partnership with the respective government departments.

(iv) NAFAKA has provided support including a grant to a long-term community-based institution, the Iringa Joint Hope SACCOs (IJHS), which is one of the programs of Iringa University. The SACCOs is currently operational in four Districts (Iringa Rural, Kilolo, Wanging'ombe, and Mufindi) and has been providing loans annually to a number of project beneficiaries and others. For instance, in 2019, IJHS has so far provided loans worth Tsh 1,897,648,552 (USD 846,409) to 2,897 beneficiaries. The SACCOs have recently gone ahead to get access to more grants from other sources, national and international, registered an AMCOs to facilitate B2B meetings, held roundtable meetings and associated market negotiations on behalf of members, as well as loan funding for the construction of large warehouses for members.

Use of ICT- The section is too short, please expand it to include sharing, dissemination and sustainability and the role of government extension officers on updating information.

Because of suggested page limitations for the quarterly report, we limited the information to be inserted in the report. However, I have inserted a link to the report on ICT activities completed so far.
(EVhUrRGU3zRBpLh4Z9e99T8BHVyXltXeLI8MtAxymebz6g?e=ugE3KI) In the revised report, I have added the following information.

Sharing and dissemination of the information are moderated through automatic and personalized SMS alerts which also have options for bulk SMS, SMS polling, surveys, and interactive video training modules. The bulk SMS option means that the project in partnership with ESOKO will act as an SMS aggregator, delivering SMS messages to subscribers' handsets through the mobile network operators' (MNO) short message service center (SMSC). The information is delivered to all registered subscribers (currently 13,000 in the database – those beneficiaries whose telephone numbers were confirmed –) independent of which mobile network they operate on.

On sustainability, we have lobbied the local governments at District and Regional levels to see the importance of using ICT to deliver extension and incorporate the costs into their budgets for sustainability. So far, there is a positive feedback from Momba DC where the DAICO is actively lobbying for inclusion of the ICT component in their budget. TARI Institutes (Uyole, Selian), agribusinesses such as fertilizer companies (MINJINGU), seed companies (MERU AGRO), micro-finance institutions, micro-insurance companies, and millers have also expressed willingness to support the platform especially with respect to developing content (TARI) and deliver bundled services to the smallholder farmers who would otherwise be left out of such engagements because they are considered financially risky.

Please confirm if targets in the report reflects targets that were entered in the FTFMS and that the activity is working towards achieving them.

Yes, the targets in the report reflect what we submitted in the FTFMS and the activity is working towards achieving them.

22% Youth Participation - Please expand to show numbers and include areas of participation. (Do they rent land, are paid laborers, or do they do family farming, etc).

Most of these young adults (74%) do family farming and on land which they own. About 26% rent land on which they do farming especially in rice growing areas (for instance, 73% of all land that the youth farm in Mbarali is leased; it is 32% in Kilombero District).

What is the feedback from QDS producers in terms of its sustainability, profitability and the overall involvement of the Government?

On sustainability of QDS, our efforts to form associations at cluster and apex levels is aimed at ensuring this so that members can access services after the projects have ended. We also plan to start supporting the associations in managing Savings and Internal Lending Communities/Committees (SILC) for members to have resources for enhancing their activities. We have also successfully linked to seed sources (TARI) the QDS producers in districts where we closed or scaled down. We hope to do the same for the other districts as the project gets close to its end.

On profitability, we have not yet done a comprehensive study on this issue but from our success stories at this link EgA6F19o7vVNqhZ4flJWgzMBd8tqssECvLRv-x_DZ8r8fw?e=Vjm5bq, the venture is profitable, from the perspective of the producers.

Involvement of Government institutions, apart from TARI Institutes. is still a challenge. The TOSCI and District Units are under-resourced in terms of human resources and operational funds. In our activities, we have noted interest by village extension officers in supporting the QDS production activities in their locations, but the district subject matter specialists responsible for seed inspection always complain of lack of resources to visit the sites without our support. The TOSCI office responsible for work in our project location (based in Njombe) is overwhelmed with only seven staff and one vehicle, while they are responsible for QDS, certified seeds and agro-input shops in the six Regions of Njombe, Iringa, Mbeya, Songwe, Rukwa, and Ruvuma. This is an aspect over which we have no control. However, on a good note, for each of the district-level associations, the district community development officer is the patron.

Have the QDS producers been introduced to financial institutions for access to loans, credits, etc?

Bearing in mind that credit facilities from Banks are risky for smallholder farmers, we envisage linking the QDS associations to the Banks once their registration is finalized and operations start. However, as a project, we will put more emphasis on initiating SILCs among the associations since they are less risky that engaging with microcredit institutions and banks.

9. ANNEXES

9.1 Annex I. Performance against PMP indicators for Project Year V (2018/19)

Indicator / disaggregation	Target 2019	Quarter 1 (Oct–Dec 2018)	Quarter 2 (Jan– Mar 2019)	Quarter 3 (Apr–Jun 2019)	Quarter 4 (Jul – Sept 2019)
EG.3.2 Number of individuals participating in USG food security programs [IM-level]	56,255	5,750	37,535	21,869	195
* EG.3.2-24 Number of individuals in the agriculture system who have applied improved management practices or technologies with USG assistance [IM-level]	42,000				**64,540**
*EG.3.2-25 Number of hectares under improved management practices or technologies with USG assistance [IM-level]	50,000				**87,762.91**

*These indicators are measured annually. Therefore, data for 2018/19 will be available in the last quarter of the project.

9.2 Annex 2: Brochures and technology briefs developed for postharvest management

(i) Flier no. I

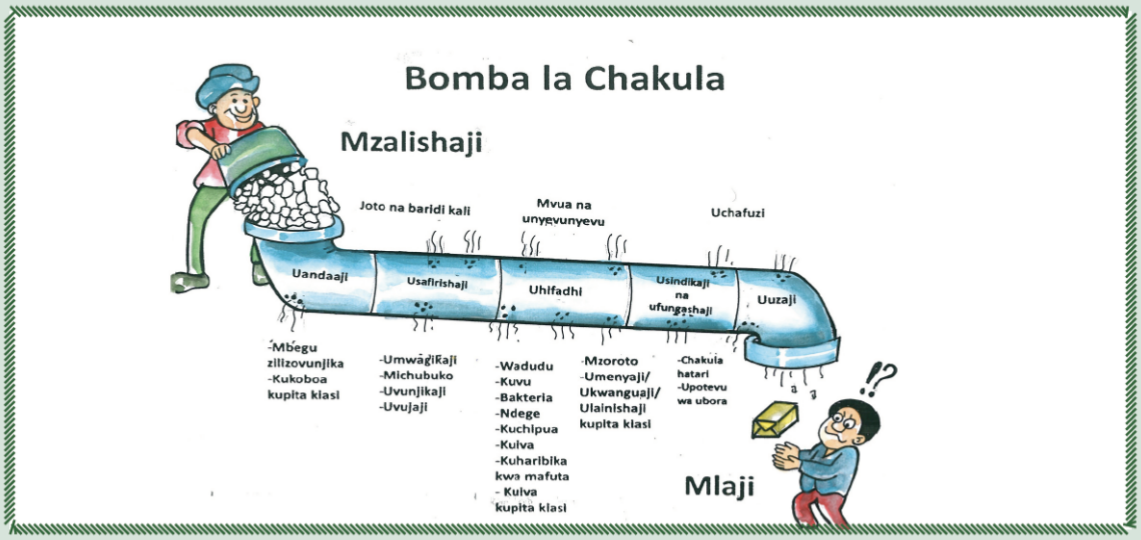
NJIA BORA ZA KUDHIBITI UPOTEVU WA NAFAKA BAADA YA MAVUNO

Upotevu wa mazao baada ya mavuno ni nini?

Ni upungufu wa mazao baada ya kuvuna na kabla ya kumfikia mtumiaji. Upotevu unaweza kutokea katika hatua mbalimbali kama vile uvunaji, usafirishaji, uandaaji wa mazao kabla ya kuhifadhi, wakati wa kuhifadhi na uuzaji wa mazao.

HATUA NA AINA ZA UPOTEVU WA NAFAKA

Viwango vya upotevu katika hatua mbalimbali ni kama ilivyo katika kielelezo kifuatacho:



Viwango vya upotevu wa nafaka barani Afrika ni kati ya asilimia 10-23

Aina mbalimbali za upotevu wa mazao

- **Kupungua uzito**- Uzito wa mavuno hupungua wakati wa kuhifadhi ghalani; kwamfano; kwa kupoteza unyevu kupita kiasi, ndege, panya, na viharibifu vingine vinapo shambulia mazao wakati wa kuvuna na kuhifadhi. Pia, kuanguka kwa mavuno wakati wa usafirishaji.
- **Kupoteza ubora**- Njia duni za kuvuna, kuandaa mazao kabla ya kuhifadhi na wakati wa kuhifadhi hupunguza ubora wa mazao. Kwamfano; muonekano wa nafaka, ladha, rangi na harufu.
- **Kupotea kwa virutubisho**- wadudu na panya hushambulia kiini cha punje ambacho kina protini and madini muhimu.
- **Kupotea kwa uhai wa mbegu**- kupoteza hali ya utoaji wa mbegu.
- **Upotevu wa usalama wa mazao**- hutokea wakati viharibifu kama panya na wadudu wengine kushambulia mazao wakati wa kuhifadhi. Pia kuhifadhi mazao yanayozidi kiwango cha unyevu unaoshauriwa kitaalamu na husababisha sumukuvu.
- **Upotevu wa kiuchumi**- Hii hujumisha tafsiri ya upotevu wa malighafi kwa mkulima na ukosefu wa fursa za masoko kwa mazao ya mkulima pia bei duni ya mazao yaliyo haribika na kushambuliwa na wadudu au magonjwa.

Dumuzi

Fukuzi

Kipepeo

Wadudu wengine

Aina za wadudu waharibifu wa mazao ghalani

NJIA NA TEKINOLOJIA ZILIZO BORESHWA ZA KUPUNGUZA AU KUZUIA UPOTEVU WA MAZAO BAADA YA MAVUNO

1. Uvunaji

Visababishi

- Kuchelewa kuvuna na kusababisha uharibifu wa mchwa na punji kudondoka
- Uharibifu wa wadudu, ndege na wanyama

Kinga/ kuzuia

- Vuna kwa wakati kuepuka mazao kushambuliwa na viharibifu vya shambani kama vile mchwa na panya
- Vuna mazao na uhifadhi katika mifuko au vikapu visafi
- Weka mazao yako juu ya turubai baada ya kuvuna toka shambani

2. Usafirishaji toka shambani kuelekea nyumbani

Visababishi

- Punje kudondoka kutokana na mifuko iliyotoboka
- Kuzidisha ujazo katika mifuko na mikokoteni
- Kusafirisha mazao bila kingo za upotevu
- Punje kudondoka katika mifuko ya mikokoteni

Kinga/ kuzuia

- Funika mkokoteni na turubai kabla ya kuweka mazao
- Weka mazao katika mifuko kabla ya kupakia mkokoteni
- Epuka kuzidisha ujazo wa mazao katika mifuko na mikokoteni

3. Ukaushaji

Visababishi

- Kukausha mazao ardhini na maeneo machafu
- Kukausha katika chanja ambayo haijakingwa kuzuia wanyama waharibifu
- Uharibifu wa panya, wadudu, wanyama na wizi
- Unyevu wakati wa kukausha
- Mazao kupungua ubora na kuchangia kuuzwa bei ya chini sokoni

Kinga/ kuzuia

- Epuka kukausha mazao ardhini na maeneo machafu
- Andaa vifaa vya kukaushia kama turubai, mikeka na vinginevyo
- Tumia tekinolojia za kukausha kama kribu, kichanja, au tururubai iliyoboreshwa

Ukaushaji usiofaa

Turubai iliyoboreshwa

4. Kupukuchua

Visababishi

- Kupiga mazao na fito ardhini na katika mifuko
- Punji kuruka mbali na eneo la kupukuchua au kupura
- Punji kuvunjika kutokana na njia ya kupiga fito

Kinga/kuzuia

- Pukuchua au pura mazao kwa kutumia mikono au mashine za kisasa
- Epuka kupukuchua mazao kwa kupiga juu ya ardhi kwa kutumia fito au kwa kukanyaga na trekta

Njia duni au isiyofaa

Njia bora inayofaa

5. Kupepeta

Visababishi

- Njia hafifu zinazotumika kupepeta mazao
- Kupepeta ardhini kwa kutegemea upepo na kusababisha upotevu wa kiasi kikubwa
- Tumia chekeche kutenganisha nafaka bora na uchafu

Kinga/ kuzuia

- Tumia mashine ya kupukuchua ambayo husaidia kupepeta
- Angalia kasi na mwelekeo wa upepo kabla hujaanza kupepeta mazao yako

Njia zisizo faa na njia zilizobora za kupepeta

6. Kuhifadhi

Visababishi

- Mashambulizi ya wadudu, ndege, na panya katika ghala
- Kuhifadhi nafaka pasipo kukauka na kupepetwa vizuri
- Kuhifadhi nafaka katika mifuko na vihenge bila kuchanganya na viuatilifu kwa kuzingatia dozi sahihi
- Kuhifadhi nafaka moja kwa moja sakafuni bila kinga yeyote (kichaja) kuzuia upotevu

Kinga/ kuzuia

- Hifadhi nafaka iliyokauka vizuri na safi
- Tumia viuatilifu sahihi na dozi sahihi vilivyosajiliwa kuchanganya na mazao wakati wa kuhifadhi
- Fuata njia bora za utunzaji wa ghala wakati wa kuhifadhi mazao yako
- Hifadhi mazao katika tekinolojia bora za kisasa m.f mifuko ya PICS, Agroz, au Silo

Aina tofauti za vifaa bora kwa hifadhi ya nafaka bila kemikali vinavyopatikana kwa matumizi ya wakulima wadogo nchini Tanzania

Kuhusu Africa RISING

Mpango wa kilimo endelevu Afrika kwa kifupi 'Africa RISING' unajumuisha tafiti tatu za miradi ya maendeleo ambayo inafadhiliwa na shirika la Marekani la Maendeleo ya kimataifa (USAID) kama sehemu ya mpango wa serikali ya Marekani wa kuboresha usalama wa chakula "Feed the Future".

Kupitia utafiti wa vitendo na ushirika wa maendeleo unaofanywa na Afrika RISING, umepelekea kujenga fursa kwa wakulima wa kaya maskini kuondokana na umaskini, kupitia mfumo wa kilimo endelevu. Mfumo huo unaboresha chakula, lishe na usalama wa mapato, haswa kwa wanawake na watoto; na kuhifadhi au kuongeza msingi wa rasilimali asilia.

Miradi mitatu inaongozwa na Taasisi ya Kimataifa ya kilimo kwenye ukanda wa Tropiki (Magharibi, Mashariki na Kusini Afrika) na Taasisi ya utafiti wa mifugo ya Kimataifa (katika nyanda za juu za Ethiopia). Taasisi ya kimataifa ya Sera ya chakula inahusika sambamba kuongoza mradi katika kufuatilia na kutathimini maendeleo ya mradi na athari zake.

(ii) Flier no. 2

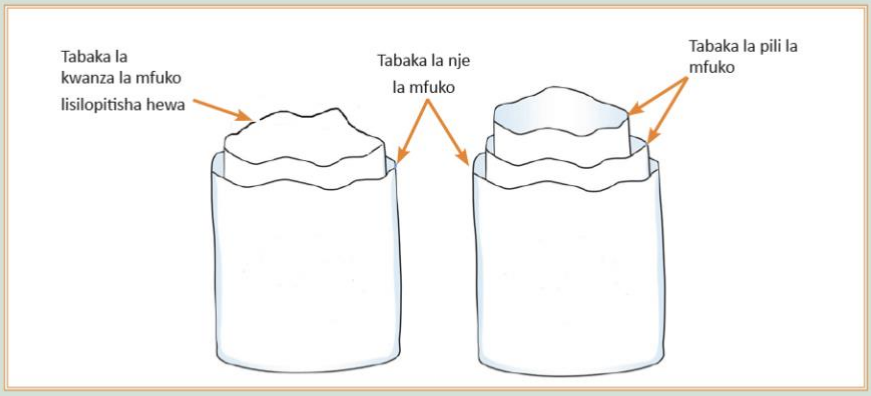
TEKINOLOJIA ILIYOBORESHWA YA KUTUMIA MIFUKO ISIYORUHUSU HEWA KUHIFADHI MAZAO

Utangulizi

Uhifadhi bora wa mazao bado ni changamoto kwa wakulima wadogo nchini Tanzania. Kwa kila Kilo 100 za mavuno ya mkulima yaliyohifadhiwa, Kilo 15-25 hupotea.

MIFUKO ILIYOBORESHWA KUHIFADHI MAZAO

- Mifuko iliyoboreshwa kuhifadhi mazao ni aina ya vifungashio visivyo ruhusu hewa.
- Mazao yakijazwa kwenye mfuko na kufungwa vizuri, hewa hupungua na hivyo kusababisha wadudu kuangamia.
- Kuna aina tofauti za mifuko hii ambayo kawaida ina mfuko mmoja au miwili laini kwa ndani.



Aina tofauti za mifuko iliyoboreshwa ya kuhifadhi mazao

JINSI YA KUTUMIA

- Nunua mifuko iliyoboreshwa kutoka kwa wauzaji waliopendekezwa.
- Kausha mazao kama inavyostahili, kwa mfano; kiwango cha unyevu kisizidi asilimia 13.5 kwa mahindi, 12 kwa mtama, 14 kwa maharage, 13 kwa kunde na mbaazi, na 5 kwa karanga.
- Pepeta kwenye chekeche ili kuondoa uchafu, mchanga na kadhalika.
- Jaribu mfuko kabla ya kujaza nafaka ili kuhakikisha ya kwamba haupitishi hewa. Njia rahisi ni kwa kujaza hewa na kubana mfuko kwa mikano. Usitumie iwapo utapitisha hewa.
- Jaza nafaka kwenye mfuko:
  1. Mimina kiasi kidogo cha nafaka kwenye mfuko wa ndani.
  2. Ingiza mfuko wenye kiasi kidogo cha nafaka kwenye mfuko wa pili au mfuko wa nje.
  3. Ongeza kipimo cha nafaka kufikia ujazo ulioshauriwa.
  4. Funga kwa makini mfuko wa ndani wenye nafaka kwa kutumia kamba.
  5. Funga kwa makini kwa pamoja mifuko yote mmoja baada ya mwingine pia kwa kutumia Kamba.

Na.1
Mimina kiasi kidogo cha nafaka kwenye mfuko wa ndani.

Na.2
Ingiza mfuko wenye kiasi kidogo cha nafaka kwenye mfuko wa pili au mfuko wa nje

Na.3
Ongeza kipimo cha nafaka kufikia ujazo ulioshauriwa

Na.4
Funga kwa makini mfuko wa ndani wenye nafaka kwa kutumia kamba

5. Funga kwa makini kwa pamoja mifuko yote mmoja baada ya mwingine pia kwa kutumia kamba.

ANGALIZO: Hakikisha unahifadhi mfuko huu juu ya mbao kuzuia unyevu.

Mfano wa mkulima anayehifadhi nafaka kwa kutumia mifuko iliyoboreshwa

FAIDA ZA KUTUMIA MIFUKO ILIYO BORESHWA KUHIFADHI NAFAKA

- Hupunguza upotevu wa mazao kwenye hifadhi kwa zaidi ya asilimia 95; hivyo basi uhakika wa chakuka kingi zaidi kwa familia au biashara kwa bei nzuri.
- Hutumika miaka 3 hadi 4 kutegemeana na utunzaji wake.
- Huokoa gharama za uhifadhi.
- Haitumii kemikali yeyote.
- Hupunguza sumu kuvu wakati wa kuhifadhi.
- Walaji kufaidika kwa kupata chakula bora na salama.

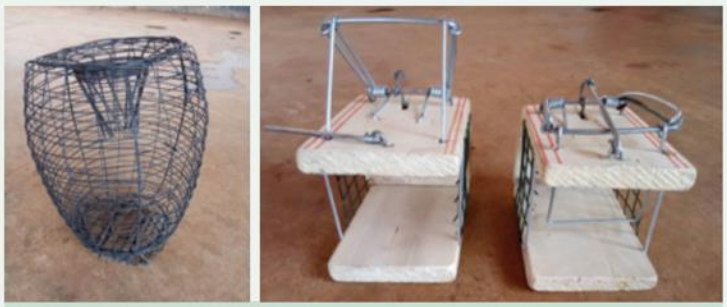
MLINGANISHO WA GHARAMA NA FAIDA KWA MFUMO WA KUHIFADHI NAFAKA KWA KUTUMIA VIUATILIFU

MWAKA	Gharama	Mfuko ya kawaida na viuatilifu	Mifuko iliyoboreshwa
1	Mfuko	TSh700	TSh5,000
	Kamba ya kufungia (mara 1)	TSh200	TSh200
	Viuatilifu (mara ya 1)	TSh1,000	TSh0
	Nguvu kazi (mara ya 1)	TSh1,000	TSh1,000
	Viuatilifu (mara ya 2)	TSh1,000	TSh0
	Nguvu kazi (mara ya 2)	TSh1,000	TSh0
	Kamba ya kufungia (mara 2)	TSh200	TSh0
2	Mfuko	TSh700	TSh0
	Kamba ya kufungia	TSh200	TSh200
	Viuatilifu (mara ya 1)	TSh1,000	TSh0
	Nguvu kazi (mara ya 1)	TSh1,000	TSh1,000
	Viuatilifu (mara ya 2)	TSh1,000	TSh0
	Nguvu kazi (mara ya 2)	TSh1,000	TSh0
	Kamba ya kufungia (mara 2)	TSh200	TSh0
3	Mfuko	TSh700	TSh0
	Kamba ya kufungia	TSh200	TSh200
	Viuatilifu (mara ya 1)	TSh1,000	TSh0
	Nguvu kazi (mara ya 1)	TSh1,000	TSh1,000
	Viuatilifu (mara ya 2)	TSh1,000	TSh0
	Nguvu kazi (mara ya 2)	TSh1,000	TSh0
	Kamba ya kufungia (mara 2)	TSh200	TSh0
	Jumla (Gunia 1)	TSh15,300	TSh8,600
	Jumla (Magunia 5)	TSh76,500	TSh43,000

Mfano wa mavuno ya mahindi kwa mkulima anayehifadhi magunia 5 ya kilo 100 kila moja

TAHADHARI

1. Hakikisha mazao yako yamekauka vizuri.
2. Zuia panya kwa kutumia mtego wa panya au paka.
3. Hakikisha sehemu ya ghala la kuhifadhi nafaka ni safi na salama. Tumia kinga za kuzuia wadudu waharibifu ghalani kama vile mitego ya kunasa panya.



Aina za mitego ya panya ambayo hupatikana kwa urahisi

Kuhusu Africa RISING

Mpango wa kilimo endelevu Afrika kwa kifupi 'Africa RISING' unajumuisha tafiti tatu za miradi ya maendeleo ambayo inafadhiliwa na shirika la Marekani la Maendeleo ya kimataifa (USAID) kama sehemu ya mpango wa serikali ya Marekani wa kuboresha usalama wa chakula "Feed the Future".

Kupitia utafiti wa vitendo na ushirika wa maendeleo unaofanywa na Afrika RISING, umepelekea kujenga fursa kwa wakulima wa kaya maskini kuondokana na umaskini, kupitia mfumo wa kilimo endelevu. Mfumo huo unaboresha chakula, lishe na usalama wa mapato, haswa kwa wanawake na watoto; na kuhifadhi au kuongeza msingi wa rasilimali asilia.

Miradi mitatu inaongozwa na Taasisi ya Kimataifa ya kilimo kwenye ukanda wa Tropiki (Magharibi, Mashariki na Kusini Afrika) na Taasisi ya utafiti wa mifugo ya Kimataifa (katika nyanda za juu za Ethiopia). Taasisi ya kimataifa ya Sera ya chakula inahusika sambamba kuongoza mradi katika kufuatilia na kutathimini maendeleo ya mradi na athari zake.

(iii) Flier no. 3

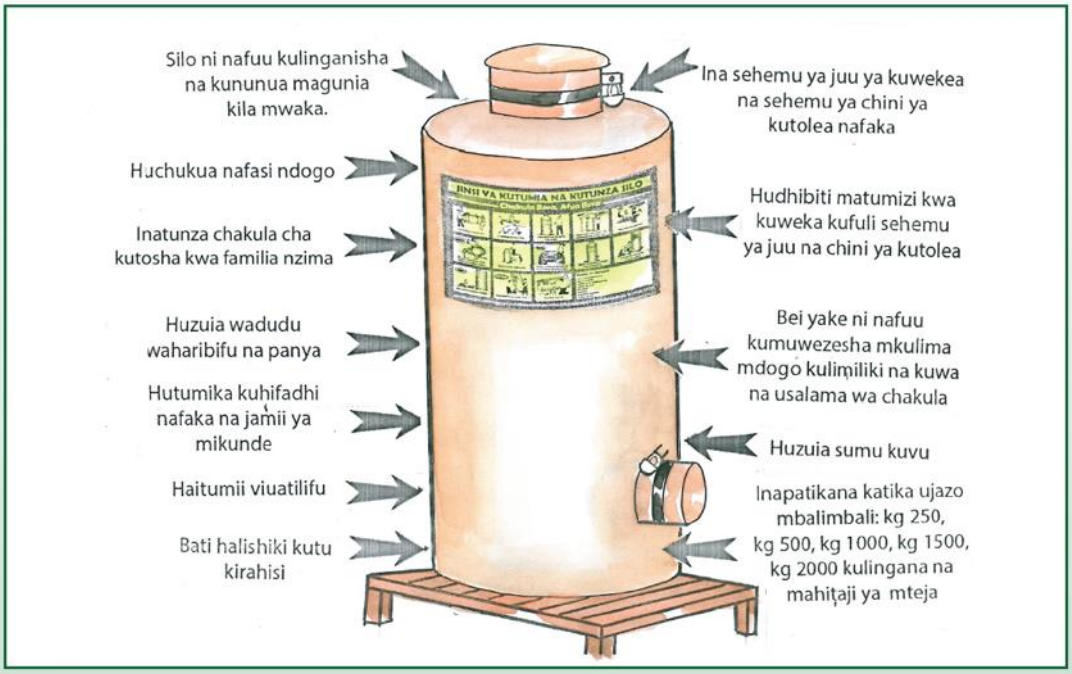
SILO KWA UTUNZAJI SALAMA WA NAFAKA

Silo ni nini?

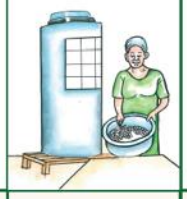
Silo ni tekinolojia ya kuhifadhi nafaka kwa muda mrefu bila kutumia viuatilifu. Silo hairuhusu hewa ndani yake na iwapo utajaza nafaka na kuziba vizuri wadudu watakufa kwa kukosa hewa.

Silo tekinolojia iliyoboreshwa ya kuhifadhi mavuno

FAIDA ZA SILO

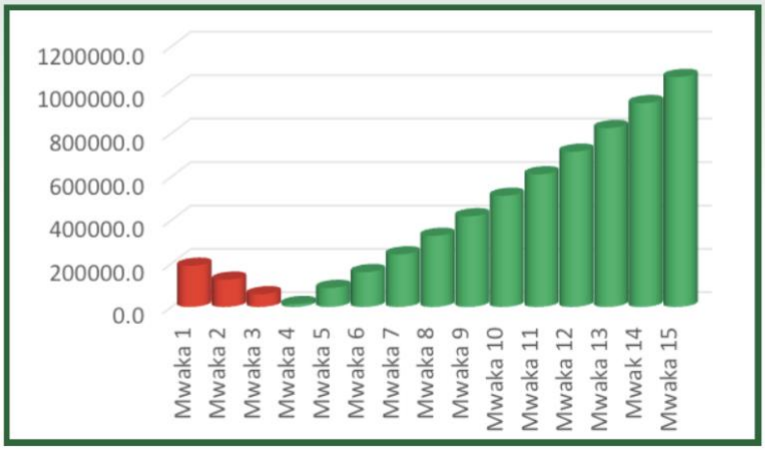


MLINGANISHO WA GHARAMA NA FAIDA KWA MFUMO WA KUHIFADHI NAFAKA KWA KUTUMIA VIUATILIFU (MFANO WA MAHINDI)

Mwaka	Utakachowekeza kununua Silo ya Kilo 500 (Magunia 5)	Thamani ya upotevu utakaozuia	Gharama ya viuatilifu	Gharama kununulia viroba	Gharama nguvu kazi kubadilisha viroba	Salio
1	Ukinunua silo kwa kiasi cha TSH 250,000	Kilo 75 yenye thamani ya TSH 45,000 	Utaepuka gharama ya TSH 10,000 (5000 mara 2 kwa mwaka) 	Utaepuka gharama ya TSH 5,000 	Utaepuka gharama ya TSH 5,000 	Katika mtaji ulionunulia silo bado kiasi cha TSH 185,000 tu ili kurejesha pesa ulizowekeza
2		Kilo 75 yenye thamani ya TSH 45,000 	Utaepuka gharama ya TSH 10,000 	Utaepuka gharama ya TSH 5,000 	Utaepuka gharama ya TSH 5,000 	Katika mtaji ulionunulia silo bado kiasi cha TSH 120,000 tu ili kurejesha pesa zako ulizowekeza
3		Kilo 75 yenye thamani ya TSH 45,000 	Utaepuka gharama ya TSH 10,000 	Utaepuka gharama TSH 5,000 	Utaepuka gharama ya TSH 5,000 	Katika mtaji ulionunulia silo bado kiasi cha TSH 55,000 tu ili kurejesha pesa zako ulizowekeza
4		Kilo 75 yenye thamani ya TSH 45,000 	Utaepuka gharama ya TSH 10,000 	Utaepuka gharama TSH 5,000 	Utaepuka gharama ya TSH 5,000 	Katika mtaji ulionunulia utakuwa na faida ya TSH 10,000 

*Ukinunua SILO yenye uwezo wa magunia 5 utakuwa umewekeza kiasi cha TSH 250,000. Utahifadhi salama bila viuatilifu kutoka msimu mmoja hadi mwingine na kujiwekea akiba kuanzia msimu au mwaka wa nne.

MLINGANISHO WA GHARAMA NA FAIDA KWA MFUMO WA KUHIFADHI NAFAKA KWA KUTUMIA VIUATILIFU KWA MDA WA MIAKA 15 (MFANO WA MAHINDI)



MAMBO YA KUZINGATIA UNAPOTUMIA SILO

Watumiaji wa silo wanashauriwa kuzingatia yafuatayo ili SILO iweze kutunza nafaka vizuri na kudumu kwa muda mrefu:

- Hakikisha kuwa umekausha nafaka kwa kuanika kwenye turubai.
- Hakikisha nafaka yako ni safi, pepeta vizuri ili kuondoa vumbi.
- Kagua ili kuhakikisha imeundwa vizuri isiweze kupitisha hewa.
- Funga kwa mpira sehemu ya kutolea nafaka.
- Weka juu ya kichanja kuzuia ubaridi wa sakafu kwani mazao yanaweza kuvunda.
- Weka mbali na ukuta kiasi cha futi moja ili kusipate ubaridi na kurahisisha ukaguzi wa mara kwa mara.
- Mimina nafaka katika silo kwa utaratibu hadi ujazo.
- Funga kwa mpira sehemu ya kuwekea mazao ili kuzuia hewa isiingie na usifungue kwa kipindi cha miezi miwili ya kwanza ili kuzuia wadudu.
- Usiweke chombo chochote juu ya Silo.
- Hakisha hamna unyevu (maji ya mvua) unaofikia Silo yako.

Uchunguzi wa Silo kama lina ubora

Funika na funga mfuniko wa juu baada ya kuweka nafaka

Ukaguzi wa mara kwa mara wa mazao

SIFA ZA SILO

- Uwezo wa kuhifadhi- kilo 250 -2,000.
- Uwezo wa kudumu: miaka 15 hadi 20.
- Kinaweza kuhifadhi: nafaka (mfano mahindi, mtama, uwele, kunde, mbazi nk.).
- Inatunza chakula cha kutosha kwa familia nzima.

Silo inatunza chakula chakutosha kwa familia

Kuhusu Africa RISING

Mpango wa kilimo endelevu Afrika kwa kifupi 'Africa RISING' unajumuisha tafiti tatu za miradi ya maendeleo ambayo inafadhiliwa na shirika la Marekani la Maendeleo ya kimataifa (USAID) kama sehemu ya mpango wa serikali ya Marekani wa kuboresha usalama wa chakula "Feed the Future".

Kupitia utafiti wa vitendo na ushirika wa maendeleo unaofanywa na Afrika RISING, umepelekea kujenga fursa kwa wakulima wa kaya maskini kuondokana na umaskini, kupitia mfumo wa kilimo endelevu. Mfumo huo unaboresha chakula, lishe na usalama wa mapato, haswa kwa wanawake na watoto; na kuhifadhi au kuongeza msingi wa rasilimali asilia.

Miradi mitatu inaongozwa na Taasisi ya Kimataifa ya kilimo kwenye ukanda wa Tropiki (Magharibi, Mashariki na Kusini Afrika) na Taasisi ya utafiti wa mifugo ya Kimataifa (katika nyanda za juu za Ethiopia). Taasisi ya kimataifa ya Sera ya chakula inahusika sambamba kuongoza mradi katika kufuatilia na kutathimini maendeleo ya mradi na athari zake.

www.feedthefuture.org